REMARKS

The outstanding objections to the drawings is respectfully traversed. The applicants respectfully submit that the forgoing amendments overcome such objections and therefore request reconsideration and withdrawal of the same.

Claims 1-6 and 8-11 are at issue. Claims 1-5, 8-9, and 11 were rejected as unpatentable over Majumdar et al. (U.S. Pat. 5,703,399) and Drake et al. (U.S. Pat. 6,281,574) in view of Ishigami (U.S. Pat. 5,057,906). Claim 6 was rejected as unpatentable over these references further in view of McCarthy et al. (U.S. Pat. 3,956,726). Claim 10 was rejected as unpatentable over Majumdar et al., Drake et al. and Ishigami further in view of Park et al. (U.S. Pat. 5,057906). Claim 10 was further rejected as indefinite. The applicants respectfully traverse the rejections.

A telephone conference between the examiner and applicants' representative, Aaron M. Peters (Registration No. 48,801), was held on July 30, 2003. The applicants thank the examiner for her comments during the telephone interview. In discussing the official action of April 9, 2003, the examiner indicated that claim 1 was unpatentable because claim 8 recited the heat sink being adhered to the lead frame with an adhesive. The examiner referred to the adhesive of claim 8 as an adhesive layer, and was of the opinion that because claim 8 recited the adhesive, the heat sink of claim 1 can contact the lead frame even if entirely divided by an insulating layer. The applicants' representative pointed out that language of claim 8 mentioned "an adhesive" and not "an adhesive layer." It is improper to read "an adhesive layer" in claim 8 when no such limitation is recited and subsequently interpret "contacting" in claim 1 based on an improper interpretation of claim 8.

During the telephone conference, the examiner interpreted the term "contacting" such that the heat sink and the lead frame may contact each other even if entirely divided by an intervening paste as in Ishigami. The examiner did not otherwise elaborate on how or in what manner the heat sink could "contact" the lead frame if divided by an intervening paste. While the applicants believe all claims are now in condition for allowance with the above amendments, the applicants respectfully disagree with the examiner's interpretation of claim 1 and Ishigami. The applicants respectfully submit that the examiner's interpretation of "contacting" is overly broad and outside the accepted understanding by those of ordinary skill in the art. Furthermore, the applicants respectfully submit that the examiner has improperly

construed the adhesive of claim 8 and used this improper construction in interpreting "contacting" in claim 1. However, the examiner did indicate during the telephone conference that claim 1 could overcome the current rejection if amended to read "directly contacting" and conceded that Ishigami does not disclose a heat sink directly contacting a lead frame.

Given that claim 1 recites the lead frame directly contacting the heat sink, the applicants submit that claim 1 is not obvious over Majumdar et al. and Drake et al. in view of Ishigami. In particular, the heat sink (12) of Drake et al. is clearly separated from the leads (21), and does not disclose a heat sink that directly contacts a lead frame. (See Drake et al., Fig. 1B.) Neither Majumdar et al. nor McCarthy et al. overcomes the deficiencies of Drake et al. Majumdar et al. disclose a heat sink (1) separated from the lead frame (3) by an insulating resin (2). McCarthy et al. merely disclose a heat detecting circuit and does not disclose or suggest any structure remotely similar to the heat sink recited in claim 1 of the instant application. The action notes the deficiencies of Majumdar et al. and Drake et al. for failing to disclose that the heat sink contacts the second surface opposite the first surface of the lead frame.

Further, Ishigami does not disclose a heat sink (11) directly contacting a second surface opposite a first surface of a lead frame (15). Rather, Ishigami discloses an insulating paste (19) disposed between the lead frame (15) and the heat radiating fin (11) for the purpose of thermally bonding, but electrically insulating the second bed portion (16), which is part of the lead frame (15), from the first bed portion (12), which is part of the heat radiating fin (11). (See Ishigami, col. 3, lines 17-24.) Therefore, Ishigami cannot disclose a heat sink directly contacting a second surface opposite a first surface of a lead frame because of the intervening insulating paste (19). Moreover, there is nothing to indicate that the heat radiating fin (11) of Ishigami as having an electrically insulating property, and could therefore suffer from the same deficiencies that are present with Majumdar. In fact, the use of the insulating paste (19) to electrically insulate the lead frame (15) from the radiating fin (11) would tend to suggest the radiating fin (11) does not possess electrical insulating properties. The action's rejections of claims 1-6 and 8-11 are therefore improper for failing to cite references that teach or suggest all of the claim limitations of independent claim 1, whether taken individually or in combination. It is clear that a *prima facie* case of obviousness cannot be established where all the limitations of a claimed combination are not

taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). See also MPEP 2143.03.

Regarding claim 8, the examiner indicated during the telephone conference that it was unclear how the heat sink could be adhered to the lead frame or the sealer with an adhesive while remaining in direct contact with the lead frame. Referring to amended Fig. 4, the drawing changes indicate an example of how the heat sink may be adhered to one of the lead frame and the sealer with an adhesive. In particular, Fig. 4 discloses that the lead frame (40) may have grooves along the bottom and an adhesive formed inside the grooves. As seen in Fig. 4, the heat sink (70) may be adhered to the lead frame (40) with the adhesive yet remain in direct contact with the lead frame (40). As would be understood by those of ordinary skill in the art, a similar arrangement may be used to adhere the heat sink (70) to the sealer (60). The applicants therefore respectfully submit that the drawings show every feature of claim 8.

Regarding the indefiniteness rejection of claim 10, during the telephone conference the examiner indicated that the phrase "the heat sink and the sealer are connected to each other by means of the grooves or the rings" was not understood because it was not disclosed in the drawings. The examiner indicated that the indefiniteness rejection could be overcome if the drawings were amended to show an example of the claimed feature. Referring to amended Fig. 5, the drawing changes indicate an example of how the heat sink and the sealer may be connected to each other by means of grooves or rings. In particular, Fig. 5 discloses that the heat sink (70) may have rings along the sides that engage with grooves in the sealer (60). The applicants therefore respectfully traverse the indefiniteness rejection of claim 10.

Accordingly, the applicants respectfully submit that all pending claims are patentable over the art of record and should be allowed. In the light of the foregoing, the prompt issuance of a notice of allowance is respectfully solicited. Should the examiner have any questions, she is respectfully invited to telephone the undersigned.

Respectfully submitted,

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